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THE MONIST

THE PRODUCTION OF PSYCHIC STATES.

WHEN one takes a comprehensive glance over the field of the philosophy of mind, he cannot but be amazed at the number of gaps that need to be filled and the number of fundamental problems that psychologists have not yet attacked. Among these, the problem of how consciousness originated has only been touched upon; the general function of conscious activity as a biological adaptation demands much clarification. Psychologists have delayed the study of such problems when they have worked exclusively from the presuppositions of behaviorism or psycho-physical parallelism. The behaviorists rightly have put man's actions into the order of nature and denied that a supernatural entity, consciousness, imposes its will on the direction of natural forces. And yet they have missed the full profit of their criticism of the older psychology by failing to see that mental states may have a place in the natural order itself. Parallelism is accepted by many psychologists as a working hypothesis, and as such it has done good service. And yet parallelism, erected into a metaphysical theory, by its very inconceiveability is likely to degenerate into epiphenomenalism, and epiphenomenalism to be replaced by radical behaviorism.

Philosophers also have contributed toward delaying the solution of the psycho-physical problem. The conflict between monists and dualists has deferred consideration of many important aspects of that problem. The strength of metaphysical dualism (animism) is chiefly negative, and the natural desire of man to believe that he has a substantial soul is balanced by a desire to conceive the universe as one, if possible. We may grant that the issue between monism and dualism is the most important one in the field of cosmology, but in attempting to contribute toward a solution of the problem, it would seem that indirect procedure is more hopeful than direct attack. Now dualism in its present stage of progress is most useful in its *criticism* of monistic theories. At the time *Body and Mind*[1] was written, Professor McDougall made a telling record of these criticisms. Some of them have been answered. In answering them, however, the method employed has been not so much to reconsider the fundamental dispute between monism and dualism, as to seek a consistent monistic position. May we not say, therefore, that it is of the greatest importance now to work the monistic hypothesis for all that it is worth in an endeavor to see whether it will meet all of the difficulties advanced by the dualists?

One step taken in this direction is highly significant, for it nullifies one of dualism's most biting criticisms. Dualists have stressed the difficulties involved in the idealistic position that matter is a form of consciousness. Dr. Strong's searching analysis in his recent book, *The Origin of Consciousness,*[2] has shown that consciousness is *adventitious* to psychic states. Thus, if psycho-physical monism be taken as the best of the monistic theories, the demand no longer exists to explain how matter is a form of consciousness; the problem is shifted to the question: how are we to conceive as one substance matter and the psychic states to which consciousness may, under suitable circumstances, be adventitious?

Another problem that has beset monism in the past is the difficulty of explaining the unity of consciousness. To this question Dr. Strong has addressed himself and made an admirable contribution. In a recent paper[3] I have endeavored to show that the unifying principle need not, as hitherto supposed, be sought either among psychic states or among sensory neural processes, but may be found in the motor neural processes which govern attention.

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[1] London, 1911.

[2] London, 1918.

[3] "The Unity of Consciousness," *Jour. of Phil.*, Vol. 18, pp. 347-357.

Naturally the epistemological problem has been much discussed in this connection. And here the solution most congenial to psycho-physical monism is that of epistemological dualism. The plea of epistemological dualism against objectivism runs: Interpret man's behavior, but do not despise conscious activity. Realize that man will not endure the repudiation of his thoughts and emotions and desires. Find a more complete way of describing his behavior, a way that will include his conscious states.

With the adoption of such a standpoint, the problem of how consciousness originated is recognized, taking the place of a fictitious problem of how a *myth* of conscious activity arose or of a dogmatic assumption of epiphenomenal states with a multitude of unaccounted for qualitative differences. Dr. Strong has made a beginning in his attempt to solve certain difficulties in the way of conceiving mind as a product of evolution. Even if Dr. Strong's conclusions should be accepted in their entirety, however, it is plain that the study of the genesis and development of consciousness are just begun. The present paper is an attempt to contribute one step toward the understanding of how consciousness and psychic states function in human behavior. The particular field of investigation chosen is that of the relation of sensation, feeling, and emotion to their neural bases.

I. A FUNCTIONAL VIEW OF NEURAL ACTIVITY.

§1. In a recent paper,[4] I have maintained that cognition and feeling are independent aspects of conscious activity.

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[4] "The Coördinate Character of Feeling and Cognition," *Jour. of Phil.*, Vol. 18, pp. 288-295.

The first assumption of the present paper is that the same independence does not extend to the neural bases of cognition and feeling. I call this an assumption, for it is *conceivable* that a *differentia* of neural substance concomitant with a qualitative conscious difference might be discovered for each of the multitude of conscious qualities. Now science conceives the physical world in terms of a dynamic, uniform substance, organized in a great variety of ways. The neural concomitants of conscious states, therefore, are to be sought in characteristic types of order. Here a choice presents itself: is the order static or dynamic or both? The assumption that I have made asserts that we are not to seek for coördinate static organizations of neural substance concomitant with feeling and cognition respectively. On the cognitive side we do indeed find a limited static differentiation in the case of the sense end-organs and cortical areas. This, however, is not sufficient in itself to account for the diverse cognitive qualities. Some dynamic, or, to use a better term here, *functional* differentiation must also be assumed. But when we come to consider the neural basis of feeling, we do not find specific sense end-organs. It is natural, therefore, to conclude that the neural basis is functional, rather than structural. So far as I know, all the current theories of feeling are in accord with this hypothesis with the exception of Professor Titchener's theory that the free, afferent nerve-endings are organs of feeling—a theory which is not widely accepted. The second assumption that I make is that no sense end-organs of feeling will be discovered.

The two assumptions that I have made are a result of the survey of progress attained in the study of feeling and emotion. The diffuse character of their physiological bases is everywhere asserted. James' theory would make certain sensations the bodily causes of emotions, sensations which have no special emotional character. Dewey's theory emphasizes the conative aspect of emotions, but here again the emotional character is not specifically localized. Marshall, in his nutritive theory, finds no definite feeling end-organs. Other theories might be cited to support our assumptions. It is not assumed by these theories, however, that feeling and cognition are not coördinate so far as consciousness is concerned. One may give full credence to Titchener's view of the latter question and to the recent results of Wohlgemuth, without claiming in addition that the neural bases of feeling and emotion are more than functional.

§2. A functional view of neural, as related to conscious activity, points the way to a new method of approach to the psycho-physical problem. There has been a general movement away from 'faculty psychology.' It is now generally recognized that consciousness is one in its functioning, and that the different processes into which a conscious moment may be resolved are but distinct *aspects* of a unified process. The spirit of faculty psychology, however, still haunts the systematic psychologists, not in their consideration of conscious activity, but in their consideration of neural processes. Rather than to try to distinguish neural bases of feeling and cognition, will it not be more profitable to consider the conditions of the production of these aspects of conscious activity? Especially significant will be a consideration of their production in reference to attention and to marginal elements of consciousness. I purpose, therefore, to discuss the conditions under which neural processes function now as cognitive, now as feeling-concomitants.

II. THE PRODUCTION OF PSYCHIC STATES IN POINT OF ORIGIN.

§4. The first subject of inquiry relates to the function of psychic states as respects their origin. I may begin by noting a difference in the evolutionary theories of cognition and feeling. Cognition is explained as a useful means of integrating the sensory and motor halves of the reflex arc when the stimulations are various and conflicting and tend in incompatible directions of motor expression. Thus cognition is conceived to be a useful adaptation at the very moment of origin. With feeling the case is entirely different. The biological function of feeling is conceived to be that of encouraging the individual to persist in beneficial activities and to desist from harmful ones. Here the adaptation implies past experience; feeling is useful in planning action based on the past. It is thus conceived not as useful at the moment of origin, but in the course of experience. As to origin, it is regarded as a chance variation which persisted in the first instance because it was not fatal to the existence of the organism. Needless to say, the furtherance-hindrance theory does not ascribe a survival-value to feeling *at the moment of origin.*

The question, therefore, is suggested: shall we seek further for a survival-value in point of origin? (I present this question because I have in view a description of the functions of cognition and feeling of a mature individual with respect to their biological value. The instrumentalists have laid stress on the instrumental character of the reflective judgment, but Professor Moore[5] refuses to commit them to a more general belief in the instrumental character of all the aspects of consciousness. Now the discussion of mature feeling and cognition raises the question of the place of immediate values in an evolutionary theory.) As to whether feeling is useful in point of origin I can only say that when we regard its conscious character, feeling at the moment of origin seems to be of contributory value only in increasing the range of contact of the organism with its environment, but I hope to show that when we regard the production of feeling, we find that feeling and cognition alike are comprehended in a unified neural function whose highest point is conscious attention.

[5] *Jour. of Phil.*, Vol. 17, pp. 514-519.

§4. At this point, however, I would dispel a possible misconception arising from the treatment of conscious functions as adaptive. The disputes that linger over this field would vanish if a certain distinction were more consistently made. The whole notion of adaptation admits of only one immediate value. This value is the biological end of evolution, survival-value. All structures and functions that persist without being explained in terms of survival-value, although without survival-value, are not harmful to the organism. The biological treatment is from the standpoint of an observer of the evolutionary process. Now it would be utterly false to imagine that this standpoint does away with intrinsic values. The latter, as well as some instrumental values, subsist from the standpoint of the individual organism. This second standpoint arises in connection with an individual consciousness, and should not be confused with that of an observer of the evolutionary process. Elsewhere I have made this distinction in more detail.[6]

We have, therefore, two centers from which valuations may be made, the consciousness of an observer and the consciousness of an individual. From the individual's point of view, the biological end of value is often swept aside for the sake of values that have arisen, presumably, as accidental by-products of the evolution-process. Thus a martyr, intent on the propagation and defence of ideal, intrinsic values will utterly disregard the "lower," naturalistic end of life with its fundamental instinct of self-preservation. He has the right to argue that the ultimate values of the individual are something quite apart from the original biological function which the structures upon which they depend subserve. He is quite within his right in refusing to accept mediaeval acquiescence in the doctrine that the life-preserving instincts should be exercised only in view of their biological end. Mature conscious activity, from the individual's point of view, may be expected to exhibit many instrumental features, especially in the *acts* of consciousness, but in respect to *content* we may expect to find much that transcends the instrumental.

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[6] *Cf. Values, Immediate and Contributory*, New York, 1920, pp. 31-36, 104-112.

When, however, we consider the origin and function of consciousness from the biological standpoint, we shall seek, from the standpoint of naturalism, instrumental values wherever they may be found. It is my purpose to show how feeling and emotion may be conceived to have usefulness in helping to adjust the individual to his environment.

§5. If, as Dr. Strong argues,[7] consciousness is adventitious to the psychic state, a prior question to that of the origin of consciousness will be: what is the origin of psychic states? We are helped here by the fact of experience that many of the steps of reasoning are conducted on a subconscious or unconscious level, so that it is reasonable to suppose that the gap between a conscious memory and the condition of the brain that subserves the memory is not so wide as has been thought. Since many stimulations are received and transmitted to the brain, but are cognized only after the stimuli have been withdrawn, we must believe that the brain is often near a psychic condition even though the stimulations do not at the time issue in *givenness*. On the border-line between psychic states that are given and psychic states that are not given are objects in the fringe or margin of consciousness. I have argued elsewhere[8] that their behavior in respect to attention indicates that pleasure and displeasure are marginal in nature. I would state further that I believe that welcomeness or unwelcomeness are the conscious indications of incompletely developed psychic states that are positvely or negatively instrumental to the welfare of the organism.

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[7] *Op. cit.*, pp. 194-209.

[8] *Jour. of Phil.*, Vol. 18, pp. 288-295.

The theory of psycho-physical monism seeks to close the gap between conscious states and psychic states, on the one hand, and between psychic states and their neural concomitants, on the other. It proclaims the continuity of substance throughout the development of the organism. If consciousness is adventitious to psychic states, we are delivered from the extravagance of the theory that all nature is conscious. If the aspects of psychical activity are functions of neural states, brain-processes in respective functional activities *are* sensations and emotions and feelings. The advantages of psycho-physical monism in a description of the interrelation of the various psychic functions are obvious and need not be refined upon here.

III. THE PRODUCTION OF PSYCHIC STATES IN MATURE CONSCIOUS ACTIVITY.

§6. Our problem is that of investigating the production of feelings and cognitions with special reference to their usefulness to the organism. We shall ask: What is the biological significance of the ideational and emotional elements that go to make up a conscious moment? The answer to this question, so far as the ideational element at the focal point of attention is concerned, is clear. The motor factors of attention are the means of integrating diverse stimulations, and the idea (identical under our theory with its neural basis) is thus biologically useful in giving directions to eventual action. As Bergson would say, our perceptions mark out lines of possible activity of the organism in respect to its environment.

The conditions under which the marginal elements of consciousness are produced are understood on the cognitive side. Whether these elements be the result of present stimulations or the recurrence of images in memory, their presence is conditional upon their belonging to simultaneous movement systems.[9] Their biological value to the organism is apparent, increasing, as they do, the probability of useful reaction to present stimuli.

The conditions under which feelings and emotions are produced and their relation to the ideational elements of consciousness, however, have not received the attention they deserve. Here the same two possibilities present themselves as occur in the case of the ideational elements; they may be the outcome of present stimulation, or they may, in some way, be traceable to past experience.

§7. It is necessary at this point to speak of the one theory that would connect certain present feeling-states with past feeling-states, the theory, namely, of "affective memory." A careful survey of the literature bearing on the subject convinces me that the existence or non-existence of such a process cannot yet be demonstrated with certainty. I much suspect, however, that "affective memory" rests on false assumptions. The issue may be stated in the form of three questions: Is there in feeling a process corresponding to memory in the field of cognition? Can memory-images of pleasure and displeasure be recalled independently of the ideas to which they were previously attached? Is the feeling-tone of a remembered idea the one attached to it in the original experience, or is it a new one?

The first of these questions rests on the false assumption that cognition and feeling have coördinate and non-identical types of neural bases. We have made the point that although cognition and feeling are coördinate to introspection, this does not demand that they have different types of neural bases. It is not surprising that feeling is coördinate with cognition in consciousness in view of the fact that qualitatitve differentiation is the predominant characteristic of psychic states. But why should we assume that this coördination extends to their neural bases? Only on the analogy suggested by the existence of sense end-organs and specific cortical areas. The force of this analogy, however, is lost when we consider that neural differentiation is very meager when compared with the differentiation of cognitive qualities.

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[9] *Cf. Movement and Mental Imagery*, M. F. Washburn, Boston and New York, 1916, pp. 130-131.

The second question would appear to be as fruitless as the first. Pleasure is pleasure; displeasure is displeasure. The pleasure attached to one experience is not different from the pleasure attached to another experience. We have no clear evidence that there is such an entity as a *specific* affective-image; feeling appears rather to be *generic* in character. As to the third question, it may be repeated that the assumption is made that there are specific differences of pleasure and displeasure.

Our own theory puts the question as to the existence of "affective memory" in a new light. Pleasure and displeasure are marginal in character; direct attention to them causes them only to vanish and to be replaced by cognitive elements. On the assumption that they have a diffuse neural basis, it is suggested that they may present to consciousness the welcomeness or unwelcomeness to the organism of neural states that have not yet reached a degree of activity where they function cognitively, but are associated with the neural states that function as marginal cognitive elements of consciousness. If this be true, neural activity which functions psychically, will include besides the cognitional determinants certain neural states not sufficiently active to produce cognition, but sufficiently active to produce feeling. The feeling thus produced must be distinguished from the feeling-tone of a present sensation, whose neural basis is probably even more diffuse activity, due to "surplus excitation," the release of "stored energy," chemical changes in organic tissues, *etc.*—precisely which of these is not yet known. I will only suggest that this theory would yield interesting results if applied to an analysis of the aesthetic experience.

§8. While it is maintained that the neural bases of cognition and feeling do not differ in character, in that a specific neural complex may function at one time as cognition, at another, as feeling, at any one conscious moment the neural bases of the cognitive and the feeling-elements will be different. If direct attention to feeling or emotion replaces it with cognitive elements which were not present when the emotion was felt, is it not reasonable to believe that the neural activity giving rise to the emotion is identical with that giving rise to the previous cognitive experience. This corollary of our theory applies to *any* surplus excitation.

§9. We are now in a position to discuss the significance of the *emotional* elements present in particular conscious moments. There seem to be three possibilities here. Professor Dewey emphasizes that emotion occurs as the result of a conflict of desires. Now it is impossible to attend to two impulses at once. Where attention fluctuates rapidly between two opposed tendencies to act, the emotion may well represent one of the ideas crowding in and endeavoring to replace the other in cognition. This may be called the first type of emotion.

Secondly, the affective aspect may be due to the partial arousal of neural processes that form the basis of past memories. To speak entirely inaccurately, yet suggestively, feelings and emotions here are on the way to becoming ideas. We may speak of this type as the substitution of emotions for ideas. Such occurs frequently when prejudices are aroused. It is a matter of common observation that ideas casually suggested will at times provoke violent emotional reactions. Persons who exhibit prejudice usually do so on scant rational grounds. Someone I know is prejudiced against the wearing of spats, but, when pressed for a defence of his feeling, gave most inadequate reasons, saying that they do not sufficiently protect the feet, *etc*. I believe that the simplest explanation of prejudice is that old associations are partially aroused. Brought from the fringe of consciousness to full attention, they would, as memories, exhibit conflict between themselves and the idea suggested. Remaining as they do in the margin of consciousness, they serve only to tinge the present idea with a strong tone of displeasure or emotion.

§10. It would be absurd, however, to claim that emotions represent only memories of the past. Genetically, emotions antedate the particular ideas which explain their nature. The child cries before he attends to the object of his grief. The adolescent youth experiences sweet delights of whose biological cause he may be entirely ignorant. Some emotions have their meaning in the undercurrent of past experience, but others burst in upon us as a totally new type of experience. The latter emotions must be traced to inherited, rather than acquired, reactions. They are the conscious indications of the operation of instinctive processes. Their neural basis is inherited associations of cortical states. From the neural standpoint, however, this third type of emotional significance will not differ from the other two types.

IV. PRACTICAL CONSEQUENCES.

§11. In conclusion I would remark upon some of the practical consequences of the theory here outlined. I have forborne studiously to seek any compromise with or help from psycho-analytic teachings in the construction of my theory, preferring to base it wholly upon orthodox psychology. I do believe, however, that it affords opportunity for interpretation of some of the results of psycho-analysis. Here I wish to indicate what appear to be the consequences of my position in respect to education, particularly in the spheres of ethics and religion.

Why is it that conviction is not obtained among average persons through the presentation of intellectual arguments so easily as through an appeal to the emotions? Why is the appeal to prejudice so potent to secure conviction? We must conclude that the appeal to emotion is wider than the appeal to specific reasons, for in emotion many associations are partially aroused which may join with the conscious idea in checking any attempt to thwart or contradict it. John Mill[10] recognized the importance of associations in explaining the action of conscience. May it not be true that where quick, decisive action is called for, especially from minds essentially unintellectual, the operation of conscience renders a service rather than creates a barrier to correct action?

Again, many philosophers and teachers of religion lay emphasis on the cultivation of feeling and emotion in connection with fullness of living and deepest religious experience. There is a strong predilection among the southern races to regard an emotional nature as more near to "reality" than cold, Anglo-Saxon intellection. The contemplation of an Absolute Idea or communion of man with God in the beatific vision is reserved for the perfection of human nature. Mortals of average intelligence build useful lives on the foundation of wholesome prejudices. In view of the limitations of attention, it would seem that the coöperation of emotion and feeling with ideation were devoutely to be desired rather than impatiently to be set aside. Furthermore, in the case of religious experience there may be experiences not possible to man through ideation alone, the elements of the experience being too many to come to attention at once and too rich to be comprehended in a general concept. Here emotion and feeling, with their broad range of reference, may serve a necessary and priceless purpose. Practically, then, we shall not reasonably seek to rid ourselves of all emotion, and by so doing lose in imagination and intuition, but we shall rather endeavor to separate the wheat from the chaff in emotions, and correct, rather than abandon prejudice.

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[10] *Utilitarianism*, Everyman ed., New York, 1910, p. 26.

The substance of this paper may be summarized as follows:

I. A FUNCTIONAL VIEW OF NEURAL ACTIVITY.

§1. Cognitive and feeling-states are coördinate. But assuming (*a*) that neural states are qualitatively much less differentiated than psychic states, and (*b*) that no specific sense end-organs of feeling will be discovered, we may not conclude that this coördination extends to their neural bases.

§2. If §1 contains a point well taken, it will be profitable to investigate the conditions of production of feeling and cognition, rather than to inquire closely into the structure of their neural bases. The neural difference may be functional, not structural.

II. THE PRODUCTION OF PSYCHIC STATES IN POINT OF ORIGIN.

§3. The origin of psychic states is a matter closely related to the biological (survival-) value of the different conscious processes.

§4. The instrumental value of the conscious processes considered from the standpoint of an observer must not be confused with valuation from the standpoint of the individual.

§5. The origin of psychic states is best explained by the theory of psycho-physical monism, according to which the gap between neural and psychic processes is closed.

III. THE PRODUCTION OF PSYCHIC STATES IN MATURE CONSCIOUS ACTIVITY.

§6. Although the biological function of the cognitive elements of consciousness is understood, that of the feeling —and emotional elements needs further investigation.

§7. "Affective memory," analyzed, proves to be based on the analogy denied in §1. The observations cited in its support find their explanation under the theory that the neural activities which function consciously are wider than those which produce cognitive elements. Feeling is produced when neural states of low intensity function consciously. This low degree of excitation may take place in areas previously aroused by stimulation, or it may be a surplus excitation of present sensations or the rudimentary form of organic sensations, *etc.*

§8. The same functional activity is never the basis of cognition and feeling at once.

§9. An emotion may represent the unattended to idea when two opposed ideas fluctuate in attention. *Or,* it may represent ideas associated with the idea in mind, which have not reached the ideational level of activity.

§10. *Or,* an emotion may be the conscious representative of an instinctive tendency felt for the first time.

IV. PRACTICAL CONSEQUENCES.

§11. Practically, the following consequences of the theory may be suggested:

(*a*) A way of reconciliation of the results of psychoanalysis with orthodox psychology is indicated.

(*b*) The utility of the education of conscience in the moral field is defended.

(*c*) Emotions may serve in religion to put the individual into contact with wider experiences than can be attained through intellection alone.

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